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COMPENSATION FOR INDUSTRIAL DISEASES.

THE PROBLEM.

The workmen's compensation law is based upon the doctrine of "trade risk." According to that doctrine, the trade risks are the risks of personal injury inherent in an occupation, independent of the faults of the employee and his employer, and ought to be borne by the employer and treated as an element in his general cost of production or service.

But, although risks of disease just as well as risks of accident so inhere in occupations, nearly all the European laws provide for compensation only for "injuries by accident"¹—the Swiss and British laws being the only exceptions. There being no apparent distinction in principle between these two classes of risks, what are the reasons for this distinction in practice?

OBJECTIONS TO COMPENSATING FOR DISEASES.

Roughly and briefly stated, the reasons for excluding generally "injuries by disease" are as follows:

First.—The general impossibility in the present stage of medical knowledge of determining accurately the causal relations

¹ A disease originating "by accident" is an "injury by accident." We are now studying responsibility for disease the origin of which cannot be traced to a definite event happening at some fixed place and moment

between occupations and diseases, and the serious practical difficulties in the way of establishing in each case whether the workman's particular illness is in fact due to a strictly occupational cause or to a cause or combination of causes for which his occupation cannot justly be held responsible.

Second.—However applicable to "injuries by disease" may be the abstract principle of trade risk underlying the accident compensation laws, some concrete provisions of those laws are singularly inapplicable:

(a) For practical reasons all the accident compensation laws go further than simply to apply the principle of "trade risk" and also variously but very largely disregard fault and similar elements as contributing factors in the causation of occupational accidents, the effect being to hold the employer generally responsible for the workman's care of himself during the time of work, so long as the latter keeps within the sphere of his employment. But to apply such a broad working rule of responsibility for others to "injuries by disease," for which no exact time of origin can be fixed, would make the employer in effect responsible for the consequences not only of the workman's lack of care of his health during hours of employment, but also of the workman's conduct and health risks while away from work and of predisposition to disease in his constitution; such elements being nearly always substantial factors and generally preponderating factors in the causation of diseases due in some sense or degree to occupations.

(b) The principal accident compensation laws provide or have been construed generally to provide—in the opinion of the writer, improperly—that where an accident merely contributes to an injury, such injury is to be deemed *entirely* the result of the accident and compensated for accordingly. A consequence of applying that rule to "injuries by disease" would be that wher-

or other short period of time. The restriction of liability to injuries by accident existed also at common law. In *Adams v. Acme Works*, 182 Mich. 157, the court (at page 161), says: "We are not able to find a single case where an employee has recovered compensation for an occupational disease at common law."

ever an occupation should merely aggravate or contribute to bringing on a disease, death or disability resulting from such disease would be deemed entirely an injury arising out of the employment, and industry would be loaded with the burden of compensating for nearly all workmen's illnesses; because every occupation, even the most healthful, will aggravate or contribute to bringing on an impending illness where rest or special care or treatment is requisite for prevention.

Third.—The frequent difficulty of determining which of two or more employers or employments is responsible for the causation of a disease. Where an accident happens in an employment the employer at that time is certainly the only employer to be held responsible for its consequences. But where a workman, who has recently worked for another or other employers, becomes disabled by a disease of gradual onset, obviously the employer of the time of such disablement will not always be the one—or in some cases the only one—responsible for the cause of the disease.²

Fourth.—If employers should be held liable for compensation for all illnesses resulting from their employments, they would inevitably be driven to exercise the severest discrimination against those persons not possessing the highest powers of resistance to disease, both in giving employment and in the terms of employment. In application only to those trades in which the

² This difficulty cannot be avoided, as is sometimes proposed by eliminating individual liability and holding all establishments in an industry collectively responsible. For, the charge upon each employer must be fairly proportionate to his individual responsibility, otherwise the effect would not only be unjust but would also be to subsidize and promote the maintenance of unsanitary conditions and practices. Therefore the law must fix some approximately just and equitable rule of individual responsibility, regardless of any ancillary provision it may make for the distribution of the risks through insurance. A method of insurance which in practice distributes the charge otherwise than fairly in proportion to the risks must not be imposed by law. Section 8(7) of the British act, which provides that, under certain conditions, mutual insurance of the liability for occupational diseases may be made compulsory upon all the establishments in an industry or upon all such establishments within a fixed area, has never become operative, although voluntary mutual insurance of the liability is quite common;—the objection to compulsory association for mutual insurance being that it is likely to result in an arbitrary distribution of the charge by votes rather than in an equitable distribution in proportion to risks.

health hazards are extraordinarily high—*e. g.*, mining and lead working—that might be socially advantageous; but in general application it would result in a crushing increase in the handicap on the weakly, ailing, aged and infirm in their struggle for existence.

Fifth.—If employers should be held responsible in a high percentage of average wages for the health of their employees, the effect would be to make the employees correspondingly irresponsible. From the standpoint of prevention and practical expediency a broad application of such a rule would be disastrous. The special health hazards of industries are being greatly reduced by modern sanitary methods and practices, propagated and enforced by public regulations, factory inspection, *etc.* Consequently the weight of expediency is in favor of emphasizing these means of prevention and of avoiding any rule of individual irresponsibility which might interfere.

It is therefore evident that an accident compensation law of usual form cannot fittingly be made applicable to injuries by disease simply by omitting the words "by accident" or "accidental" from the definition of the injuries for which compensation is given.³ Nevertheless it seems as if there were some diseases which under some conditions may justly and expediently be made subjects for compensation. To learn what are those diseases and conditions we turn to European precedents.

EUROPEAN PRECEDENTS.

By the Swiss law of 1881, which made factory proprietors liable without fault for accidental injuries to their employees, it was provided that among such injuries should be included diseases caused by such *poisonous substances*⁴ as should be specified by the Federal Council, the burden in each case resting upon the injured workman to *prove conclusively* that his disease was due *exclusively* to some one of the poisons specified. Some thirty-

³ For American ventures in that direction, *cf. post*, p. 521.

⁴ Italics throughout are the writer's.

four poisonous substances were so specified under this law—the “virus of smallpox, anthrax and glanders” being curiously classed as the thirty-fourth “substance.” But the results of this provision of law have been meager, only seventy-six cases of disease having been compensated for in 1913.⁵ This earlier Swiss law has now been replaced by the Sickness and Accident Insurance Law of 1911—which took effect as to accidents in 1916. Article 68 of that law provides: “The Federal Council shall prepare a list of *substances*, the production or employment of which occasions dangerous diseases. Every disease *exclusively or essentially* due to the action of one of these substances in an enterprise subject to the insurance is deemed an *accident*.” Presumably the list of poisonous substances promulgated under the earlier law remains in force under this later law.

The original British workmen’s compensation law (Act of 1897) provided for compensation only for injuries by accident; but the later Act of 1906 applies also to certain diseases, termed “industrial diseases,” for which compensation is made payable, such diseases being treated as if injuries by accident.⁶ This change in the British law seems to have been brought about by the contrast between the decisions in *Brintons v. Turvey*⁷ and *Steel v. Cammell, Laird & Co.*⁸ In the former case, where a workman had contracted anthrax by the passing into his eye of a bacillus of that disease from some wool on which he was working, the actual time of the occurrence being proved as a fact, it was held that there was an “injury by accident,” and consequently that the dependents of the deceased workman were entitled to compensation under the Act of 1897; whereas, in the latter case, where a workman was suffering from gradual lead poisoning, admittedly due entirely to his employment, it was held that there was no “injury by accident” and consequently no right to compensation under that act.

⁵ Bulletin of United States Bureau of Labor Statistics, September, 1916, p. 108.

⁶ Section 8 and Third Schedule, as extended by Departmental Orders.

⁷ House of Lords; Appeal Cases (1905), 230; 7 Minton-Senhouse’s W. C. C. 1.

⁸ 2 K. B. (1905), 232; 7 M.-S. W. C. C. 9.

The diseases specified as "industrial" under the Act of 1906 now number twenty-seven and include not only many kinds of poisoning, but also a number of contagious diseases (*e. g.*, anthrax and glanders), a number of diseases due to excessive use of or strain upon particular parts of the body (*e. g.*, "beat hand," "beat knee" and telegraphist's and writer's cramp), and such special diseases as nystagmus, glass worker's cataract and compressed air illness.

To sustain a claim for disability or death from disease the workman or his dependents must prove that he is disabled or that his death was caused by one of the specific diseases mentioned in the schedule and that such disease is or was due to the *nature* of *any* employment in which he was employed during the twelve months preceding disablement or suspension from work. A certificate to that effect from the "certifying surgeon" of the district establishes a *prima facie* case for the complainant, shifting the burden of proof upon the employer. If the certificate of the certifying surgeon be unfavorable, it is nevertheless still open to the claimant to prove his case by other evidence.⁹ The act creates a presumption in favor of the claimant under certain circumstances, as follows: In the schedule, opposite each particular industrial disease, is set down a description of what is called a process, but is really a class of industrial processes. If the workman at or immediately before the date of his disablement or suspension was employed in a process of the kind so set down opposite to his disease, the disease is presumed to be due to the nature of such employment, unless the certifying surgeon certifies to the contrary; and the burden of proof is thereby shifted upon the employer. This last provision, it should be observed, is purely evidential. If the workman can prove that his disease was due to the nature of his employment he is entitled to recover, although he was not employed in any of the processes mentioned in the schedule.

⁹ *McGinn v. Udston Coal Co.* (1912), 5 Butterworth's W. C. C. 559. Upon appeal, a medical referee appointed by the court reviews the certificates of the certifying surgeon.

There is, however, no presumption applying to the consequences of disease. The claimant must prove that the disability or death resulted proximately or ultimately from the disease, it being insufficient that it was caused by a complaint which might or might not have been a sequela of the disease.¹⁰

Presumptively the compensation is payable by the employer who last employed the workman during the twelve months previous to disablement or suspension from work in the employment to the nature of which the disease was due. But:

(1) If such employer can prove that the disease was contracted while the workman was in the employment of some other employer, the latter must pay the compensation.

(2) Where the disease has been contracted by a gradual process all the employers who during the previous twelve months have employed the workman in the employment to which the disease was due must contribute, without need of any proof that the disease was contracted while in their employment.¹¹ In the absence of special circumstances showing that the risk was greater in one employment than in another, the two or more employers so liable contribute according to the length of time the workman had been employed by each.¹²

However, the employer is not liable for compensation for an industrial disease if at the time of entering his employment the workman wilfully and falsely represented himself in writing as not having previously suffered from the disease. The workman is also obliged to furnish his employer the names and addresses of all other employers who have employed him during the preceding twelve months; but a false statement in the information furnished in compliance with this provision does not impair the workman's rights, unless the employer is prejudiced thereby.¹³

This law is a source of substantial relief to victims of misfortunes, £654,287 having been paid in compensation in 29,168 cases during the years 1908-1914, both inclusive. It is to be

¹⁰ Haylett v. Vigor, (1908) 2 K. B. 837; 1 B. W. C. C. 282.

¹¹ Mallinder v. Moores, (1912) 2 K. B. 124; 5 B. W. C. C. 362.

¹² Lees v. Waring, (1909) 2 B. W. C. C. 474.

¹³ Burnham v. Taylor, (1909) 3 B. W. C. C. 569.

noted, however, that of those cases, 25,390 were of the miners' diseases and 2674 of lead poisoning, leaving only 1104 cases of all the other diseases specified; and that the number of cases of the miners' diseases, more particularly nystagmus, "beat knee" and "beat hand," is steadily increasing, thereby apparently verifying the continental objections to the inclusion of these ailments, and more particularly of the latter two, under the compensation law.¹⁴ Nevertheless British observers are generally satisfied with the results of this branch of their law.

Projects or measures to provide for compensation for industrial diseases have for many years past been under discussion in Germany, France, Austria and Italy. By Article 547 of the German Workmen's Insurance Code of 1911 the Federal Council was empowered to extend the *accident* insurance to such occupational diseases incurred in industries as the council should specify, and to issue special regulations therefor; but up to date the Federal Council has not been persuaded to take any action in that line. In France a well formulated measure seemed to be making some progress in the Parliament before the outbreak of the war. It was modelled after the British law; but in first instance would have covered only some few specified diseases engendered by lead and mercurial poisonings and *only* when occurring to workmen employed in some specified industrial occupations. The latest Italian project, it is reported, covered only lead, mercury, phosphorous, arsenic and benzine poisonings and anthrax and glanders. According to the best information obtainable by the writer, the latest Austrian proposal covers only lead, mercury and phosphorous poisonings. The significant fact

¹⁴ Where disability results from the gradual weakening of a part of the body under constant strain, it is because that part of the body was not fit for the task. In such cases the means of prevention are either a change of occupation, a change in individual methods of work, or special exercise to strengthen the weakening part. The objection is that industry should not be compelled to hold out an inducement in the form of compensation to an endangered workman to continue deliberately on his way to incapacity without troubling himself about means of prevention. From another point of view, imagine the heartburnings of a firm of lawyers who should employ a copyist, and some months later find themselves liable to him for a life pension because he breaks down with a long impending attack of writer's cramp!

about the foregoing is not that in the continental countries of Europe they are thinking about extending their compensation laws to apply to some diseases, but rather that after many years of consideration and observation they are doubtful about doing so and about how to do so.¹⁵ Manifestly we should take warning from their caution.

THE SITUATION IN AMERICA.

Have we in America proceeded with caution and consideration? In the compensation statutes of the United States, California, Connecticut, Massachusetts, Michigan, New Hampshire, Ohio, Texas and West Virginia all words expressly limiting the injuries to be compensated for to injuries by accident have been omitted,¹⁶ without any apparent consideration of the consequences. Some of these statutes have been construed nevertheless to apply only to injuries by accident.¹⁷ Others have not yet been construed. The Federal act has been construed "every which way."¹⁸ But the Supreme Court of Massachusetts has definitely construed the statute of that state not to be limited to apply only to injuries by accident.¹⁹ It is sometimes stated that

¹⁵ Cf. "*Bulletin des Assurances Sociales*," 1909, p. 400, *et seq.*; and *id.*, 1911, p. 26, *et seq.* In France the problem of compensating for injuries by disease has been under continual discussion since the enactment of the first accident compensation law in 1897.

¹⁶ The Iowa, Montana, Oklahoma, Washington and Wyoming acts omit the words "by accident" or "accidental" from their primary definitions of the injuries to be covered, but by separate provisions exclude disease from injuries to be compensatable.

¹⁷ *Michigan*: *Adams v. Acme Works*, 182 Mich. 157; *Connecticut*: *Miller v. American Steel & Wire Co.*, 90 Conn. 349; *Ohio*: *Industrial Commission v. Brown*, 110 N. E. Rep. 744. The California Act of 1913 was similarly construed by the Industrial Commission; but in 1915 the legislature amended it so as more expressly to apply to all injuries.

¹⁸ Cf. Opinions of Attorney-General and Solicitor of Department of Commerce and Labor, cited in 1 *Bradbury's Workmen's Compensation*, pp. 339-346, and *Honnold on Workmen's Compensation*, Sec. 85. These opinions construed the earlier Federal act which is now replaced by the Act of 1916; but the language defining the injuries to which the law shall apply is the same in both acts.

¹⁹ *Gould's Case*, 215 Mass. 480; *McNichol's Case*, 215 Mass. 497; *Hurle's Case*, 217 Mass. 223; *Johnson's Case*, 217 Mass. 388; *Madden's Case*, 222 Mass. 487. A bill (Senate Bill No. 390, by Mr. Neebe), is now pending in the Connecticut Legislature to extend the compensation act of that state expressly to apply to "diseases arising out of or in connection with the employment." See reference to California, n. 17, *supra*.

such construction makes the Massachusetts law cover "occupational diseases"; but that proposition is practically meaningless until such diseases be legally defined. It is submitted that the Massachusetts courts must now read into the statute some distinction between injuries by disease and injuries by accident that is not there and is yet to be invented and defined, or else allow compensation for every case of illness to which something incidental to the victim's employment is found as a fact to have contributed to any material degree—*i. e.*, probably for a very high proportion of illnesses occurring to workmen. A similar situation exists in California by reason of the amendments of 1915 to the compensation statute of that state.

In the New Jersey Legislature of 1916 there was introduced a bill ²⁰ to supplement the compensation act of that state—which act applies only to injuries by accident—so as to extend its application to those diseases which are *proximately* caused by the nature of the employment. Only fourteen specified diseases were covered, twelve of which were taken from the British list, with anilin and wood alcohol poisonings added, the more notable omissions from the British list being the miners' diseases—nystagmus, "beat hand," "beat knee," "beat elbow" and inflammation of the wrist joint. This bill did not receive much consideration; but it had the merit of being the first manifestation in the United States ²¹ of a disposition to pay any attention to experience and observation as a guide to experiments in this doubtful line of compensation.

During the past year a committee of the Commissioners on Uniform State Laws has taken up the study of this subject and has prepared and is circulating for criticism and suggestions a "Draft of Uniform Occupational Diseases Act." ²² This draft

²⁰ Senate Bill No. 29, by Mr. Colgate.

²¹ In Canada, in the Manitoba Act of 1916 (Sec. 81-A and Schedule 2), the provisions relative to industrial diseases of the British act have been closely followed, the diseases covered, however, being limited to lead, mercury, phosphorous and arsenic poisonings, anthrax and ankylostomiasis (hookworm).

²² This draft, dated December, 1916, is in the form of a supplement to the "Uniform Workmen's Compensation Act, Approved by Conference of Commissioners on Uniform State Laws," October, 1914.

is substantially a reproduction in simpler and clearer language of the provisions relative to industrial diseases in the British act, as construed by the courts. In the introductory notes prefixed to the draft it is stated: "Occupational diseases must not be confounded with the ordinary diseases or sicknesses which workmen suffer like other members of the community, such as scarlet fever or tonsilitis or tuberculosis." In so far as this statement means that *compensatable* diseases are such diseases only as—generally speaking—are peculiar to workmen employed in certain industries or industrial processes, to the exclusion of diseases common to the public, it is supported by all well-considered precedents and by practically all expert European opinion. But both this statement and the title of the "draft act" give rise to some confusion by calling such diseases "occupational diseases," in preference to designating them by the British title, "industrial diseases," because in medical and other literature the words "occupational diseases" are commonly used with a far broader meaning.²³

Thus the Century Dictionary defines "occupational disease" as "a disease arising from causes incidental to the patient's occupation," and in a recent work on "The Occupational Diseases," Dr. W. Gilman Thompson defines them as "maladies due to specific poisons, mechanical irritants, physical and mental strain or faulty environment resulting from specific conditions of labor"—which definitions include many diseases "which workmen suffer like other members of the community." In an instructive study of "The Compensation Cost of Occupational Diseases,"²⁴ Mad-

²³ In an address before the Conference on Social Insurance, Washington, December 4-9, 1916, Frank F. Dresser, Esq., pointed out that: "Occupational disease has two definitions: First, a disease to which the public at large is not subject, such as lead poisoning or phossy jaw, which is attendant upon and peculiar to a particular process and for which the injury itself is solely or principally responsible. . . . Second, the large number of diseases to which the public at large is subject, such as tuberculosis, but which may be caused or aggravated or accelerated wholly or partly by specific conditions of labor." The English call the first of these two classes of diseases, "industrial diseases," and it would be convenient if we should make the same distinction.

²⁴ A paper read at the Fifth Meeting of the Casualty Actuarial and Statistical Society of America, February 25, 1916, by James D. Maddrill.

drill, an actuary, adopts the foregoing definition, and classes as occupational diseases of iron smelting alone—gas poisoning due to carbon monoxid or metallic fumes; indigestion and cramps due to overheating; diseases of the eye due to heat, glare or fumes; kidney diseases due to fumes; rheumatism due to temperature changes; diseases of the lungs, throat, *etc.*, due to temperature, moisture or dust; diseases of the heart and arteries due to over-exertion; and diseases of the skin due to acid or abrasion.

But not all cases of the diseases classed as occupational by Maddrill or of those diseases which may (but may not) be due to the causes specified in the Century Dictionary's and Dr. Thompson's definitions really arise out of the special health hazards of the victims' occupations. On the contrary, taking iron smelting for illustration, out of every hundred cases of the diseases classed by Maddrill as the occupational diseases of that industry occurring among workmen employed in the better establishments ²⁵ in that industry, probably about eighty or ninety on the average would be due principally or ultimately ²⁶ to predisposition or some health hazards foreign to the occupation; and there is no practicable method of identifying with any reasonable degree of certainty the remaining ten or twenty cases so due to the special hazards of the occupation and distinguishing them from the eighty or ninety cases not so due.²⁷ To trust the selection of

This author's estimate of the cost of compensating for what he calls occupational diseases raises a question which cannot be discussed here. It is sufficient to note that he estimates such cost at about 2% of the cost of compensating for accidents, whereas the writer firmly believes that it would eventually be nearer 200%—this difference arising from a difference in appraisals of the legal effect of a liability in the terms he contemplates.

²⁵ In many low-grade establishments in unhealthful industries much illness is due to faulty conditions, capable of correction by known and practicable means. For such conditions the proper remedy is to compel their correction, rather than to impose upon all establishments in those industries—the good and the bad alike—a legal liability of uncertain justice and expediency.

²⁶ Obviously liability for a disease of gradual onset cannot justly be based upon the *proximate cause of the outbreak* of the disease. In order to fix responsibility it is necessary to trace the disease back to its origin or origins.

²⁷ Doubtless many a medical man can classify such cases to his own complete satisfaction; but all other persons would make different classifications. To establish a legal liability conditioned upon such an uncertain criterion would propagate uncertainty, speculative claims and litigation, not

the cases to be compensated for to the haphazard chances of litigation would revive the evils of the old liability laws, which the compensation law was designed to eliminate by the substitution of a quick, certain and inexpensive remedy. Consequently these diseases of iron smelting (with possible exceptions) cannot now justly be made compensatable. And the same is true of a large majority of all the diseases commonly classed as occupational.²⁸

If the problem of compensating for occupational diseases were one of reparation for wrongs, justice might require the provision of a legal remedy covering all possible cases, regardless of the difficulties in the way of defining the conditions to liability and of tracing the chain of causation. But no wrongs are involved. Therefore the question is somewhat as follows: What are the maladies, if any, that are so certainly, demonstrably and largely due to special health hazards of occupations that it would be both just and expedient to reverse the natural law, which lets the loss from the risks of life rest upon the victims, and instead to require employers to assume the loss therefrom—or some high proportion of such loss. Apparently there are very few such maladies. And the more intensively the subject is studied the fewer they appear to be. Though generally confined to such diseases as, broadly speaking, are peculiar to workmen engaged in certain industries or industrial processes, they cannot be defined either in those or in any other general terms, but must be determined by scientific observation and experience and legally defined by enumeration.

CONCLUSIONS.

The foregoing notes are intended to supply the basic information from which the reader may draw his own conclusions. The writer's conclusions are: The compensation law primarily should be limited to apply only to injuries by accident, but it

to mention the probability of a progressive relaxation of the standards of liability, resulting finally in complete health insurance solely at employers' expense. Cf. "*Bulletin des Assurances Sociales*," 1909, p. 411.

²⁸ Probably the health risks of occupations could be so distributed by compulsory health insurance that the losses from sickness in unhealthful occupations in excess of the normal would fall upon the respective industries rather than upon the individual victims. But how to accomplish

may be extended with probable justice and expediency to apply also to some few specific diseases—preferably to be termed “industrial diseases.” The best list of such diseases to date is that contained in the schedule of the British act, though some of the diseases included therein are doubtful.²⁹ The best formulated measure for extending an accident compensation law to apply also to some injuries by disease is the “draft act” prepared by the committee of the Commissioners on Uniform State Laws,³⁰ above referred to, based upon the British act.

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that is a distinct problem from the one we are studying. Lest the reader should be misled by this note it is appropriate to point out that in no country wherein health insurance is *compulsory* has there yet been any attempt systematically to distribute the charge in proportion to the risks.

²⁹ *I. e.*, “beat hand,” “beat knee,” “beat elbow,” inflammation of the wrist joint, telegraphist’s cramp and writer’s cramp.

³⁰ This draft, as published, has some minor imperfections; but it is assumed that they will be corrected upon revision.